



WELL CONSTRUCTION LOG

WELL NO.: **MW-1101-S4**

TOTAL DEPTH: **105.00**

PROJECT INFORMATION

PROJECT: **GM/ENCORE (Allison Transmission)**

SITE LOCATION: **Speedway, IN**

LOGGED BY: **Matt Griles**

DATE STARTED: **6/13/2011 6:00:00 AM**

DATE COMPLETED: **6/14/2011 2:15:00 PM**

DRILLING INFORMATION

DRILLING CO.: **WDC**

DRILLER: **Josh Johnson**

DRILLING METHOD: **Sonic**

COORDINATES:

Northing: 1648781.8

Easting: 168922.9

TOC Elevation: 718.98

DEPTH	SOIL SYMBOLS	SOIL DESCRIPTION	SAMPLE ID	SUDAN IV	PID (ppm)	WELL CONSTRUCTION DETAILS
0		ASPHALT: Gravel and ASPHALT				Flush Mount- Concrete
		SANDY SILT: ML/CL SANDY SILT, roots, gravels, loose, fine-grained, dry, 10 YR4/6, dark yellowish brown				PVC
		SANDY CLAY: SC, SANDY CLAY with silts, slightly moist, slightly plastic, interbedded pebbles in matrix, 10YR 4/4, yellowish brown.				grout
		SILTY SAND: SM, SILTY SAND, slightly moist, loose, medium-coarse sand, some gravels, trace cobbles, 10YR 4/4, yellowish brown, color change to light grayish brown at 22.0' with odor and staining noted; increase in fines at 24.75'.				
		SILTY CLAY: ML/CL, dense SILTY CLAY with some sand and gravel in mix, friable, impacted with odor of diesel(?), some pebbles in matrix.				
		SAND: SM, SAND, coarse-grained, well graded, poorly sorted, wet, loose, slight odor noted, 10YR 5/1, gray.				
		SAND: SM, SAND, medium-coarse grained, moderately sorted/graded with an increase in fines at 31.5', at 39' interval of increased clay within sand cobbles and gravels, loose, 10YR 4/4, yellowish brown.				
		CLAYEY SILT: ML/CL, Silty clay/CLAYEY SILT, competent cohesive (till) with interbedded pebbles, slightly moist, stiff, 10YR 5/1, gray.				
		SAND: SM, SAND, fine-grained, well graded/poorly sorted, wet, loose, becoming increasingly coarser with depth and moderate/well sorted, 10YR 3/1, gray.				
		CLAYEY SILT: ML/CL, Silty clay/CLAYEY SILT, competent, hard, compact, friable, at 60.5-61.25 interval of slightly moist fine-grained sands, return to hard and competent (till), 10YR 5/1, gray.				



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DATE STARTED: **6/13/2011 6:00:00 AM**

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DRILLING INFORMATION

DRILLING CO.: **WDC**

DRILLER: **Josh Johnson**

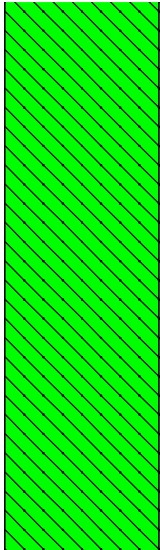
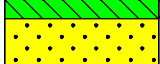
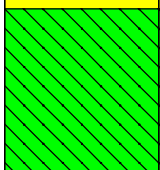
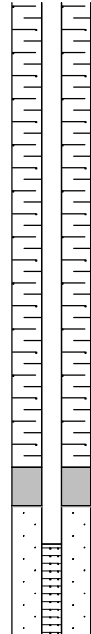
DRILLING METHOD: **Sonic**

COORDINATES:

Northing: 1648781.8

Easting: 168922.9

TOC Elevation: 718.98

DEPTH	SOIL SYMBOLS	SOIL DESCRIPTION	SAMPLE ID	SUDAN IV	PID (ppm)	WELL CONSTRUCTION DETAILS
						
		SAND: SM, SAND, fine-grained, well sorted, poorly graded, wet, loose, 10YR 5/1, gray.				
		TILL: ML/CL, hard compact competent TILL, friable, with interbedded pebbles and gravels, 10YR 3/1, gray, end of boring at 105'.				
						



WELL CONSTRUCTION LOG

WELL NO.: **MW-1102-S4**

TOTAL DEPTH: **103.00**

PROJECT INFORMATION

PROJECT: **GM/ENCORE (Allison Transmission)**

SITE LOCATION: **Speedway, IN**

LOGGED BY: **Randall Woodruff**

DATE STARTED: **6/5/2011 2:00:00 PM**

DATE COMPLETED: **6/8/2011**

DRILLING INFORMATION

DRILLING CO.: **WDC**

DRILLER: **Josh Johnson**

DRILLING METHOD: **Sonic**

COORDINATES:

Northing: 1648807.1

Easting: 169300.3

TOC Elevation: 720.19

DEPTH	SOIL SYMBOLS	SOIL DESCRIPTION	SAMPLE ID	SUDAN IV	PID (ppm)	WELL CONSTRUCTION DETAILS
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		<p>SANDY CLAY: Silty SANDY CLAY, top soil, pebbles and gravels, organics, dry, Dark brown.</p> <p>CLAYEY SAND: SP/SC, CLAYEY SAND, slightly moist, brick fragments, fine-medium grained, organics, Light brown-brown; increase in clay content at 2.5'; pebbles and gravels; increase in moisture at 4', light brown/tan mottling.</p> <p>CLAYEY SAND: SP/SC, CLAYEY SAND, decrease in clay content at 4.5'; medium sand, increase gravel content at 5'.</p> <p>SAND: SP, SAND, fine, loose, slightly moist, medium grained, Light brown-brown; gravels at 6'; cobbles present at 9'; medium-coarse at 9.5'; oxidation from 12'-13', moist; oxidation 17'-19', moist.</p> <p>SILTY SAND: SM, sandy silt/SILTY SAND, fine, cohesive, trace clays, slightly moist, Light grayish brown.</p> <p>CLAYEY SAND: SP, CLAYEY SAND and gravels, oxidized, moist, non-plastic, Yellowish brown.</p> <p>SAND: SAND fine-medium, cohesive, dry, trace gravels and cobbles, Light brown.</p> <p>SAND AND GRAVEL: Coarse SANDS with pebbles, gravels and cobbles, wet, moist, loose, trace silts and clays, Light brown.</p> <p>SILTY CLAY: SILTY CLAY, trace pebbles, hard, non-plastic, dry, Grey.</p> <p>SILTY SAND: SM/SW, SILTY SAND, trace pebbles, oxidation, fine-medium, Brown.</p> <p>SAND AND GRAVEL: GRAVELS/cobbles with coarse SANDS, wet, very saturated, Grey.</p> <p>SAND: SAND with trace pebbles, fine-medium, trace coarse sand, slightly moist, Light grayish-brown; oxidation, gravels and cobbles at 40', wet.</p> <p>CLAYEY SILT: CLAYEY SILT, trace pebbles, very stiff, dry, slightly plastic, Grey.</p> <p>SILT: SILT, fine, stiff, dry-slightly moist, non-plastic, no gravels, Grey.</p>				<p>Flush Mount-Concrete</p> <p>PVC</p> <p>grout</p>
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WELL CONSTRUCTION LOG

WELL NO.: **MW-1102-S4**

TOTAL DEPTH: **103.00**

PROJECT INFORMATION

PROJECT: **GM/ENCORE (Allison Transmission)**

SITE LOCATION: **Speedway, IN**

LOGGED BY: **Randall Woodruff**

DATE STARTED: **6/5/2011 2:00:00 PM**

DATE COMPLETED: **6/8/2011**

DRILLING INFORMATION

DRILLING CO.: **WDC**

DRILLER: **Josh Johnson**

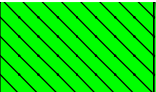
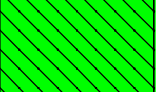
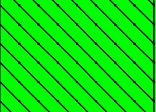



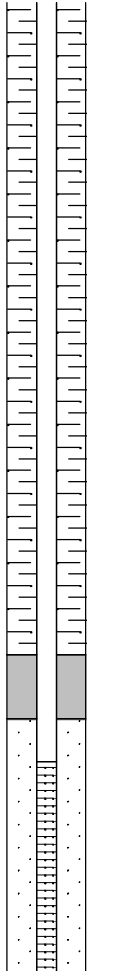
DRILLING METHOD: **Sonic**

COORDINATES:

Northing: 1648807.1

Easting: 169300.3

TOC Elevation: 720.19

DEPTH	SOIL SYMBOLS	SOIL DESCRIPTION	SAMPLE ID	SUDAN IV	PID (ppm)	WELL CONSTRUCTION DETAILS
		SILTY SAND: SILTY SAND, fine, slightly cohesive, slightly moist, Light grey.				
		SAND: Medium-coarse SAND, pebbles, slightly moist, oxidation, trace silts and clays, Light grayish brown; fine-medium from 51.5'-53.5'.				
		SILTY CLAY: SILTY CLAY, slightly moist, stiff, non-plastic, pebbles, Grey; hard and dry at 59', trace sands; at 70' increase in sand content, stiff-very stiff, dry. Moist sand and gravels seams at 92.5'-97', 93.1'-93.3' (slightly moist), and 94.75'-95' (slightly moist).				
		SAND AND GRAVEL: SAND AND GRAVELs, pebbles, moist/wet, sticky, clays and some silts, Grey.				
		SILTY CLAY: SILTY CLAY, pebbles, very stiff, slightly plastic/non-plastic, dry, Grey.				
		FINE SAND: FINE SAND, slightly moist, trace pebbles, cohesive, Grey; clay present at 102'.				
						



WELL CONSTRUCTION LOG

WELL NO.: **MW-1103-S3/4**

TOTAL DEPTH: **105.00**

PROJECT INFORMATION

PROJECT: **GM/ENCORE (Allison Transmission)**

SITE LOCATION: **Speedway, IN**

LOGGED BY: **Randall Woodruff**

DATE STARTED: **6/9/2011**

DATE COMPLETED: **6/10/2011**

DRILLING INFORMATION

DRILLING CO.: **WDC**

DRILLER: **Josh Johnson**

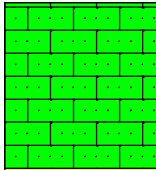
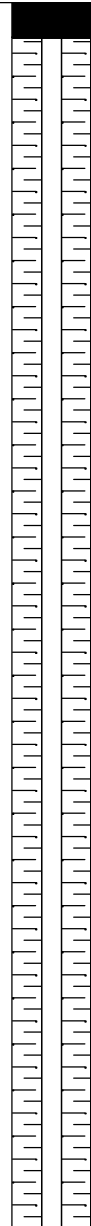
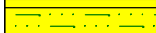

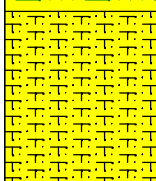
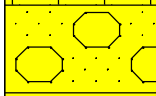

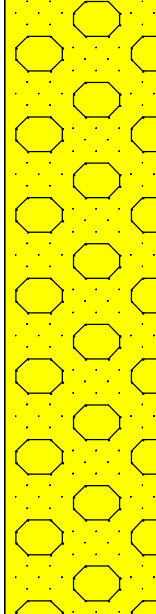
DRILLING METHOD: **Sonic**

COORDINATES:

Northing: 1648812.3

Easting: 169668.3

TOC Elevation: 717.88

DEPTH	SOIL SYMBOLS	SOIL DESCRIPTION	SAMPLE ID	SUDAN IV	PID (ppm)	WELL CONSTRUCTION DETAILS
		SANDY LOAM: Sandy silt with some clay, topsoil, organic matter, dry, cohesive, medium stiff, trace pebbles, Yellow-brown; increase in clay content at 2', coarse sand; trace oxidation; slightly moist at 4.25'.				 Flush Mount- Concrete PVC grout
		SAND: Medium-coarse SAND, loose, dry, Light yellow-brown.				
		CLAYEY SAND: CLAYEY SAND with gravels and pebbles, moist, coarse, cohesive, Brown.				
		SILTY SAND: SILTY SAND, loose-hard, friable, pebbles-cobbles, dry, oxidation, Light yellowish brown; slightly moist at 12'.				
		SAND AND GRAVEL: Coarse SAND and pebbles/GRAVELS, slightly moist-dry, loose, Brownish grey; moist at 14'.				
		CLAYEY SAND: CLAYEY SAND with pebbles/cobbles, moist, sticky, friable, medium stiff, Brown.				
		SAND AND GRAVEL: SAND and pebbles-GRAVELS, medium-coarse, loose, lightly moist, Light brown; oxidation at 20.5'; silt present at 24'; increase in cobbles at 25', moist/wet; color change to Light brownish grey at 30'; medium-fine sands at 31.5', decrease in gravels/cobbles.				



WELL CONSTRUCTION LOG

WELL NO.: **MW-1103-S3/4**

TOTAL DEPTH: **105.00**

PROJECT INFORMATION

PROJECT: **GM/ENCORE (Allison Transmission)**

SITE LOCATION: **Speedway, IN**

LOGGED BY: **Randall Woodruff**

DATE STARTED: **6/9/2011**

DATE COMPLETED: **6/10/2011**

DRILLING INFORMATION

DRILLING CO.: **WDC**

DRILLER: **Josh Johnson**

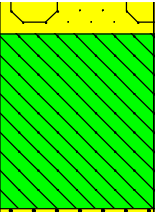
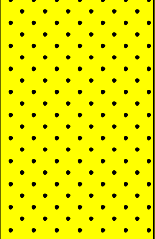
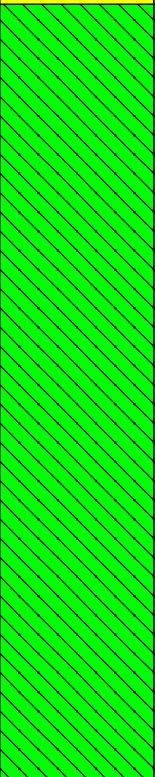
DRILLING METHOD: **Sonic**

COORDINATES:

Northing: 1648812.3

Easting: 169668.3

TOC Elevation: 717.88

DEPTH	SOIL SYMBOLS	SOIL DESCRIPTION	SAMPLE ID	SUDAN IV	PID (ppm)	WELL CONSTRUCTION DETAILS
		SILTY CLAY: SILTY CLAY, pebbles, medium stiff-stiff, slightly moist, slightly plastic, Grey; hard and dry a 39', friable, non-plastic.				
		SAND: SAND, medium-coarse, slightly moist-moist, slightly cohesive, Brown-grey; color change to grey at 42.5', trace silt.				
		SILTY CLAY: SILTY CLAY, pebbles, slightly moist, medium stiff, slightly plastic, Grey; hard and non-plastic at 55',				



BORING LOG

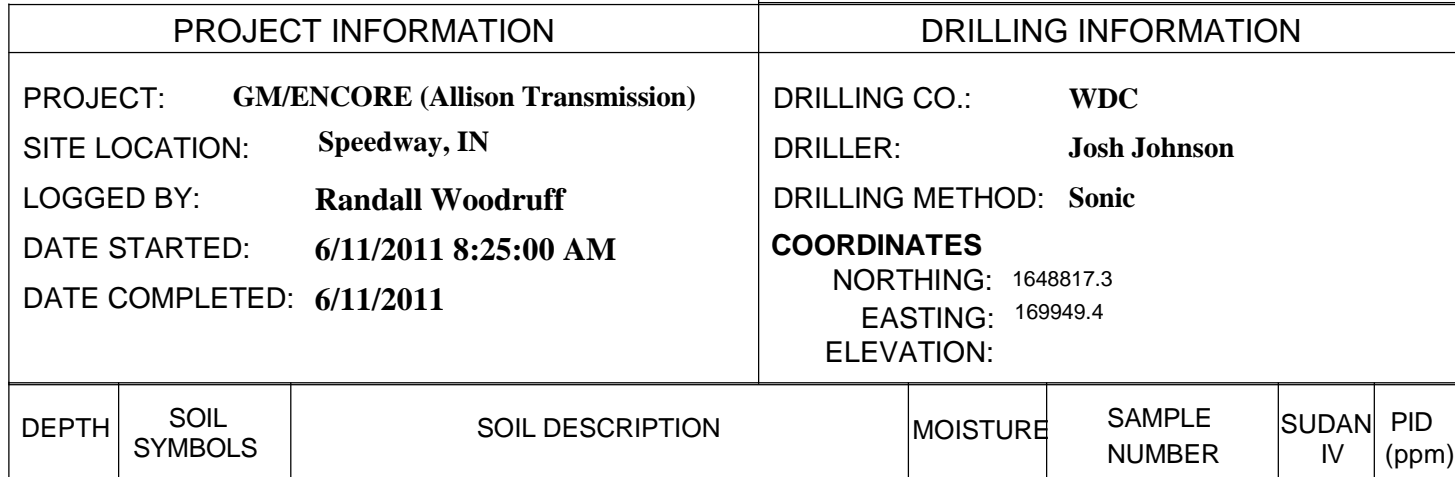
BORING LOG: **MW-1104**

TOTAL DEPTH: **85.50**

PROJECT INFORMATION	DRILLING INFORMATION
PROJECT: GM/ENCORE (Allison Transmission) SITE LOCATION: Speedway, IN LOGGED BY: Randall Woodruff DATE STARTED: 6/11/2011 8:25:00 AM DATE COMPLETED: 6/11/2011	DRILLING CO.: WDC DRILLER: Josh Johnson DRILLING METHOD: Sonic COORDINATES NORTHING: 1648817.3 EASTING: 169949.4 ELEVATION:

DEPTH	SOIL SYMBOLS	SOIL DESCRIPTION	MOISTURE	SAMPLE NUMBER	SUDAN IV	PID (ppm)
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		<p>ASPHALT: ASPHALT</p> <p>SAND: SAND (medium-coarse) and pebbles and gravels, loose, dry, Brown-light brown.</p> <p>CLAYEY SAND: CLAYEY SAND/sandy clay with loose sands, slightly moist, soft, pebbles, trace gravels, Brown; decreasing clay content with depth.</p> <p>SAND: SAND (medium-coarse), pebbles, loose, slightly moist, Light brown; gravels at 4.5'; cobbles starting at 5.5'; oxidation at 8'; large cobbles from 8.5'-10.5'; oxidation at 10.5'; fine-medium sands and silt starting at 11'; oxidation at 13'.</p> <p>SAND: SAND, fine-medium pebbles, slightly moist, trace gravels, Light brownish grey; oxidation at 17.5'; gravels from 17.5'-18'; trace silts and clays from 18'-20.5'; fine-coarse sands starting at 20.5'; coarse sand and wet at 22'-23'.</p> <p>SAND: SAND, fine-medium pebbles, slightly moist, trace gravels, oxidation staining (dark red) at 23.25'-23.5'; silts and clays starting at 23.5'; increase in pebbles at 25'.</p> <p>SILTY CLAY: SILTY CLAY, pebbles, stiff-very stiff, slightly moist, non-plastic, trace gravels, Grey.</p> <p>SAND: SAND, fine-medium pebbles, slightly moist, trace silt, Light grayish brown; color change to grey at 31.5'.</p> <p>SILTY CLAY: SILTY CLAY, pebbles, hard, dry, non-plastic, Grey.</p> <p>SILT: SILT, fine, trace pebbles, dry, friable, cohesive, Grey.</p> <p>SAND: SAND, trace silt, fine, cohesive, dry, Grey; Pebbles at 45'.</p> <p>SILTY CLAY: Gray SILTY CLAY- Pebbles, trace, gravels, hard, dry, non-plastic, grey.</p>				
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WELL CONSTRUCTION LOG

WELL NO.: **MW-1105-S3/4**

TOTAL DEPTH: **95.00**

PROJECT INFORMATION

PROJECT: **GM/ENCORE (Allison Transmission)**
SITE LOCATION: **Speedway, IN**
LOGGED BY: **Randall Woodruff and Tim Porter**
DATE STARTED: **6/3/2011 12:30:00 PM**
DATE COMPLETED: **6/6/2011**

DRILLING INFORMATION

DRILLING CO.: **WDC**
DRILLER: **Russ Knotts**

DRILLING METHOD: **Sonic**

COORDINATES:

Northing: 1649643.4

Easting: 169736.0

TOC Elevation: 714.16

DEPTH	SOIL SYMBOLS	SOIL DESCRIPTION	SAMPLE ID	SUDAN IV	PID (ppm)	WELL CONSTRUCTION DETAILS
		<p>SILTY CLAY: ML-CL SILTY CLAY, common gravels, fine-medium sands, slightly moist, 10YR 4/4, Dark yellowish brown; grain size increasing at 2.5' to include medium-coarse sands, common-many gravels, few cobbles.</p> <p>SILTY SAND: SM-ML SILTY SAND, common-many gravels, few cobbles, medium-coarse sand, 10YR 5/6, Yellowish brown.</p> <p>CLAYEY SILT: ML-CL CLAYEY SILT Gray, moist, slightly plastic, few gravels, common medium-coarse sands, variegated pattern of 10YR 5/4 Yellowish brown and 10YR 5/1.</p> <p>SAND: SM-SP medium-coarse SAND few-common gravels, slightly moist, 10YR 6/1 gray; very moist-wet at 13.5'; layer of fine sand from 13.5'-13.7' and 14.4'-14.8'.</p> <p>SAND: SM-SP medium-coarse SAND few-common gravels, color change to 10YR 5/4 Yellowish brown at 14.6'-17'; color change to 10YR 5/1 Gray from 17'-24.5', loose and wet throughout this interval, fine sand from 17.2'-17.6' and 18.5'-20.5'.</p> <p>CLAYEY SILT: ML CLAYEY SILT, few medium-coarse sands, trace gravels, dense, slightly moist, 10YR 5/1 Gray.</p> <p>SAND: SAND medium-coarse, common gravels, very moist, loose, 10YR 5/1 Gray; fine-medium sand from 28'-29'.</p> <p>CLAYEY SILT: ML CLAYEY SILT, few medium-coarse sands, trace gravels, dense, slightly moist, 10YR 5/1 Gray; dry and hard at 35'.</p> <p>SILTY SAND: SM SILTY SAND, fine, few pebbles, few gravels, trace clays, slightly moist, 10YR 5/1 Grey; increasing moisture with depth; decrease in pebbles/gravels with depth.</p> <p>SILTY CLAY: ML-CL SILTY CLAY (till), few gravels, trace pebbles, trace medium sands, hard, slightly plastic, 10YR 5/1 Grey; sand lens from 47'-47.5', medium-coarse, slightly moist-moist gravels.</p>				<p>Flush Mount-Concrete</p> <p>PVC</p> <p>grout</p>



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PROJECT INFORMATION

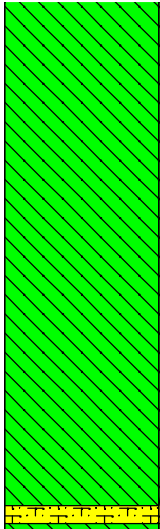
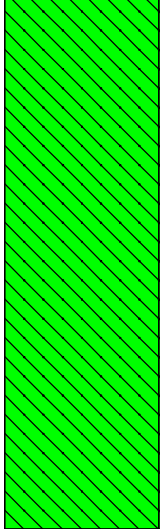
PROJECT: **GM/ENCORE (Allison Transmission)**
SITE LOCATION: **Speedway, IN**
LOGGED BY: **Randall Woodruff and Tim Porter**
DATE STARTED: **6/3/2011 12:30:00 PM**
DATE COMPLETED: **6/6/2011**

DRILLING INFORMATION

DRILLING CO.: **WDC**
DRILLER: **Russ Knotts**
DRILLING METHOD: **Sonic**

COORDINATES:

Northing: 1649643.4
Easting: 169736.0
TOC Elevation: 714.16

DEPTH	SOIL SYMBOLS	SOIL DESCRIPTION	SAMPLE ID	SUDAN IV	PID (ppm)	WELL CONSTRUCTION DETAILS
		<p>SILTY SAND: Clayey SILTY SAND, wet, moist, soft, sticky, 10YR 5/1 Grey.</p>				
		<p>SILTY CLAY: ML-CL SILTY CLAY (till), pebbles, hard, non-plastic, 10YR 5/1 Grey; sand lens from 80'-80.25, fine, grey, slightly moist; sand lens from 88'-89.25, medium-coarse, slightly moist, silt and clay, gravels. End of boring at 95.0.</p>				<p>bentonite-pellets</p> <p>sand pack</p> <p>PVC sch 40</p> <p>bentonite-pellets</p>